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2 October 1964

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Fort Davis Station
Washington, D.C. 20020

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Subject: Contract [redacted] Variable Anamorphic Adapters

Gentlemen:

Enclosed are two (2) copies of an updated Mechanical description of the performance parameters of the subject equipment dated 9/28/64.

This is forwarded in compliance with a request made by cognizant personnel from your office during a progress review meeting held at our plant on 8/21/64.

Very truly yours,

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[redacted]
Contract Administrator

CML/sr

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VARIABLE ANAMORPHIC EYEPIECE

Each eyepiece consists optically of three lenses and a reflective Porro image reversal arrangement. The first two lenses comprise the anamorphic zoom section and the third lens serves as a relay system.

Lens #1 Negative (plano concave) cylindrical achromatic cemented doublet, -50 mm focal length.

Lens #2 Positive (plano convex) cylindrical achromatic doublet, +50 mm focal length.

Lens #3 Relay lens, achromatic cemented [redacted] triplet. 25X1

The image erecting Porro system consists of four mirrors. Prisms are not used in order to reduce weight.

The system may be called an afocal image plane extender with zoom capability. It relays the image plane of the regular microscope to a new position, at which all regular microscope eyepieces may be used. This is possible, since the diameter of the actual field at the new eyepiece position is equal to the field diameter at the regular microscope eyepiece tube.

In the "zoom zero" position, the magnification of the system is close to unity, in the maximum zoom position, the magnification will be 3X in one direction ("Y"), unity in a direction perpendicular to it ("X").

The combined eyepiece magnification will be as follows:

Type of Eyepiece Used	Eyepice Magnification		
	in X	in Y	
		At min. Zoom	At max. Zoom
5X	5X	5X	15X
10X	10X	10X	30X
15X	15X	15X	45X
20X	20X	20X	60X

The use of the high power eyepieces at the maximum zoom position is not recommended, since the combined image resolution of microscope and zoom eyepiece will probably not be sufficient for the use of a total eyepiece power of 45 or 60X.

The following controls will be available:

Zoom
Direction of zoom axis
Fine focus for the zoom direction
Interpupillary distance

MAA/hc
9/28/64